Health Consultation

PAGEL'S PIT

NEW MILFORD, WINNEBAGO COUNTY, ILLINOIS

CERCLIS NO. ILD980606685

AUGUST 25, 2000

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation
Atlanta, Georgia 30333

Health Consultation: A Note of Explanation

An ATSDR health consultation is a verbal or written response from ATSDR to a specific request for information about health risks related to a specific site, a chemical release, or the presence of hazardous material. In order to prevent or mitigate exposures, a consultation may lead to specific actions, such as restricting use of or replacing water supplies; intensifying environmental sampling; restricting site access; or removing the contaminated material.

In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members. This concludes the health consultation process for this site, unless additional information is obtained by ATSDR which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

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HEALTH CONSULTATION

PAGEL'S PIT

NEW MILFORD, WINNEBAGO COUNTY, ILLINOIS

CERCLIS NO. ILD980606685

Prepared by:

Illinois Department of Public Health
Under Cooperative Agreement with the
Agency for Toxic Substances and Disease Registry

Statement of Issues

The purpose of this health consultation is to provide an update of activities at the Pagel's Pit Landfill site (Winnebago Reclamation Landfill). The Illinois Department of Public Health (IDPH) completed a Public Health Assessment (PHA) for Pagel's Pit in August 1995. IDPH evaluated data collected during the site remedial investigation/feasibility study (RI/FS) and concluded that future potential exposure to groundwater contamination was the primary human health concern at the site. Continued groundwater monitoring was recommended. This health consultation evaluates site activities since the completion of the PHA.

Background and Discussion

Pagel's Pit is a former limestone quarry that was converted into a solid waste disposal landfill. The site occupies about 100 acres (the landfill occupies approximately 47 acres) and is 5 miles south of Rockford in New Milford, a rural, unincorporated area of south Winnebago County (Figure 1). The landfill has been in operation since 1972 and has an estimated 1 to 2 years of operation remaining. Approximately 33% of it has been permanently capped.

The site is in a predominantly rural, unincorporated area and is bordered on the east by Lindenwood Road and on the west by Killbuck Creek. Approximately 300 people live within one mile of the site (see Figure 2). Killbuck Creek flows within 250 feet of the landfill border. The creek is shallow and impassable to boating in the vicinity of the site. It is used for sport fishing further downstream of the landfill. The creek is not used as a source of water for human consumption or irrigation of farm crops. No information has been found on whether the creek has been or is being used to water livestock. It merges with the Kishwaukee River about two miles north of the site. Two intermittent streams flow north and south of the landfill and merge with Killbuck Creek at points 1,000 feet northwest and 1,200 feet south of the site. Area groundwater generally flows from east to west towards Killbuck Creek.

The Acme Solvents site is directly east of the landfill (Figure 1). The discovery of area private well contamination resulted in placement of the Acme Solvents site on the U.S. Environmental Protection Agency's (USEPA) National Priorities List (NPL or Superfund) in 1983. An ensuing investigation of the Acme site was conducted during 1984-1985. Contamination from the Acme site was detected in several area residential wells. Those homes were initially supplied with water treatment systems and now have an alternate water supply from a well north of the site. A pump and treat system has also been installed and is operating at the Acme site to remove contaminants from groundwater.

Pagel's Pit was also a suspected contributor to area groundwater contamination and was placed on the NPL in June 1986. A remedial investigation (RI) was conducted for Pagel's Pit between 1988 and 1990, and investigators concluded that groundwater contamination is the main public health hazard associated with this site. Groundwater west of the landfill and on the southeast border of the site is contaminated, and several contaminants are present above levels of public health concern. The source of contamination on the southeast portion of site remains uncertain because the impact from the Acme site is unclear. Sampling of a monitoring well (Figure 3, well

G120B) installed between the Acme site and landfill suggests that both sites are contributing sources to this area of contamination. A summary of sampling data from 1997-1998 is provided in Table 1, and sample locations are identified in Figure 3. Two private wells west of the site were sampled in September 1999, and no contamination was detected. No contaminants have been detected above levels of health concern in recent samples from Killbuck Creek. Although some past exposures to contaminated air or soil might have occurred, data are too limited to evaluate any of those possible exposures. No other significant site-related exposures were identified.

IDPH staff have conducted several site visits over the past year. Those visits have coincided with a public hearing USEPA held in August 1999 to discuss the proposed Record of Decision (ROD) and a public meeting in early September 1999 to discuss proposed remedial actions at the site. The most recent visit occurred in late September 1999 when IDPH sampled two private wells west of the site and two private wells north of the site. During those site visits, trucks were observed dumping in the landfill, and heavy equipment was moving earth at the site. An additional landfill area is also being constructed adjacent to the southern border of the existing landfill.

The site has been divided into two, separate operable units. Operable Unit 1 (OU1) includes all of the site with the exception of the contaminated groundwater in the southeast corner, and Operable Unit 2 (OU2) includes groundwater in the southeast corner of the site. USEPA, with Illinois Environmental Protection Agency (IEPA) concurrence, issued a ROD, which was signed on June 28, 1991, that presented the selected remedial action for OU1. The selected remedy did not interfere with the operation of the landfill. It included

- a sanitary landfill cover for the waste disposal area;
- groundwater extraction along the west side of the site;
- carbon adsorption or air stripping following pretreatment with a solids filter for on-site groundwater treatment, and treated water then discharged to surface water;
- treatment to remove inorganic chemicals, if necessary, prior to carbon adsorption or air stripping;
- leachate extraction and transfer to the local, publicly owned treatment works for treatment;
- gas extraction and use of the gas for fuel or gas flaring;
- deed restrictions for land surrounding the site; and
- site monitoring and maintenance of all remedial action components.

Since the finalization of the ROD, site activities have included modifications and additions to the existing leachate collection and gas extraction systems, issuance of deed restrictions, and permanent capping of approximately 33% of the landfill. A study was also conducted to determine the feasibility of installing a groundwater pump and treat system on the west side of the site to actively remove contaminants from the groundwater. That study suggested that a pump

and treat system would not be cost effective, given the amount of water necessary to pump, because of the proximity to Killbuck Creek.

A second ROD was signed in September 1999 that addressed remedial actions for OU2 and modifications in the remedy selected for OU1. The remedy selected for OU2 is institutional controls, which consists of deed restrictions prohibiting installation of water production wells in the southeast area of the site. Groundwater will also continue to be monitored while natural attenuation (biological and chemical) processes break down contaminants. The pump and treat operations at the ACME site and the eventual, complete landfill capping are also expected to gradually reduce and eventually eliminate contamination. The primary modification to OU1 is to also rely on natural attenuation processes with the imposition of deed restrictions on the property west of Killbuck Creek instead of the pump and treat system originally proposed in the first ROD. A contingency plan was also incorporated into the ROD. It will be used if the control of the contamination from the site and natural attenuation processes do not lead to the eventual return of groundwater to beneficial use or if the contaminated groundwater becomes an immediate threat to a downgradient well. The contingency plan consists of an active remedy to address contamination in the groundwater.

Members of the community surrounding the site are concerned about potential health effects from drinking and using contaminated groundwater in the area. As previously stated, homes with affected wells have been supplied with an alternate water source, and future residential well contamination is unlikely because the nearest residence is one-half mile from the site. Residents are also concerned about possible migration of the contaminant plume because natural attenuation was selected rather than an active remedy. The ROD includes continued monitoring of area groundwater and a contingency plan that will initiate an active remedy if the contamination persists and migrates. Those actions should identify contamination if any moves toward private wells, thereby reducing or eliminating potential future exposures from this site.

Child Health Initiative

IDPH has determined that, currently, no one is exposed to site-related contaminants. The child population around the site is small, and future exposure is unlikely given the remedial activities taken for the site.

Conclusions

IDPH concludes that, under current conditions, exposures are not at levels expected to cause adverse health effects, so the site does not pose a public health hazard. While future exposure to groundwater is possible, locations of the private wells, direction of groundwater flow, and selected remedy make future exposures unlikely. The gas extraction and leachate collection systems should also reduce the potential for contaminant transport off-site. Once the landfill is completely capped, natural attenuation processes should reduce or eliminate the potential for future exposure to groundwater. Past exposures to contaminants in air and surface soils may have

occurred at this site; however, those potential exposures cannot be evaluated because of limited data.

Recommendations and Public Action Plan

IDPH recommends that the appropriate monitoring wells be sampled annually to determine the extent of migration of the contaminant plume and the progress of natural attenuation processes. This recommendation is consistent with the ROD and is the responsibility of the potentially responsible parties with oversight from USEPA.

Preparer of the Report

Ken McCann, MA
Environmental Toxicologist
Illinois Department of Public Health

References

Illinois Department of Public Health. Public Health Assessment for Pagel's Pit, Winnebago County, New Millford, Illinois, CERCLIS NO. ILD980606685. Springfield, IL. August 10, 1995.

Illinois Department of Public Health. Draft Public Health Assessment for Acme Solvents, Inc., Winnebago county, Rockford, Illinois, CERCLIS NO. ILD053219259. Springfield, IL. July, 1992.

United States Environmental Protection Agency. 1991. Declaration for the Record of Decision for Pagel's Pit Site. June 28, 1991.

United States Environmental Protection Agency. 1999. Declaration for the Record of Decision for Pagel's Pit Site. September, 1999.

Table 1.

Chemicals of Interest in Groundwater
1997-1998 Sample Summary
see figure 3 for well locations
(all values in micrograms per liter (µg/L))

Contaminant	Ranges in Well 120B	Ranges in Wells in Southeast Corner of the Site (wells G109a, G109, G114, G113, G133a)	Ranges in Wells on the Remainder of the Site (all other wells)	COMPARISON VALUE
Organic Compounds				
cis-1,2-dichloroethene	20-23	9-98	ND	70 MCL
tetrachloroethene	ND	8-15	6-12	5 MCL
trichloroethene	6-7	21-42	5	5 MCL
vinyl chloride	ND	4-15	ND	2 MCL
Inorganic Compounds				
ammonia-nitrogen	90-440	120-1040	100-164000	3000 EMEG* (CHILD)
manganese	ND	28-2800	20-1400	500 RMEG*(CHILD)
thallium	ND	ND	2-9	2 MCL
zinc	107	110-9270	25-4180	3000 EMEG* (CHILD)

ND - not detected
NA - none available
source: Declaration for the Record of Decision for Pagel's Pit Site. September, 1999.
* source: ATSDR Drinking Water Health Comparison Values

Figure 1

Pagel's Pit Site
New Milford
Winnebago County, IIL
CERCLIS No. ILD980606685

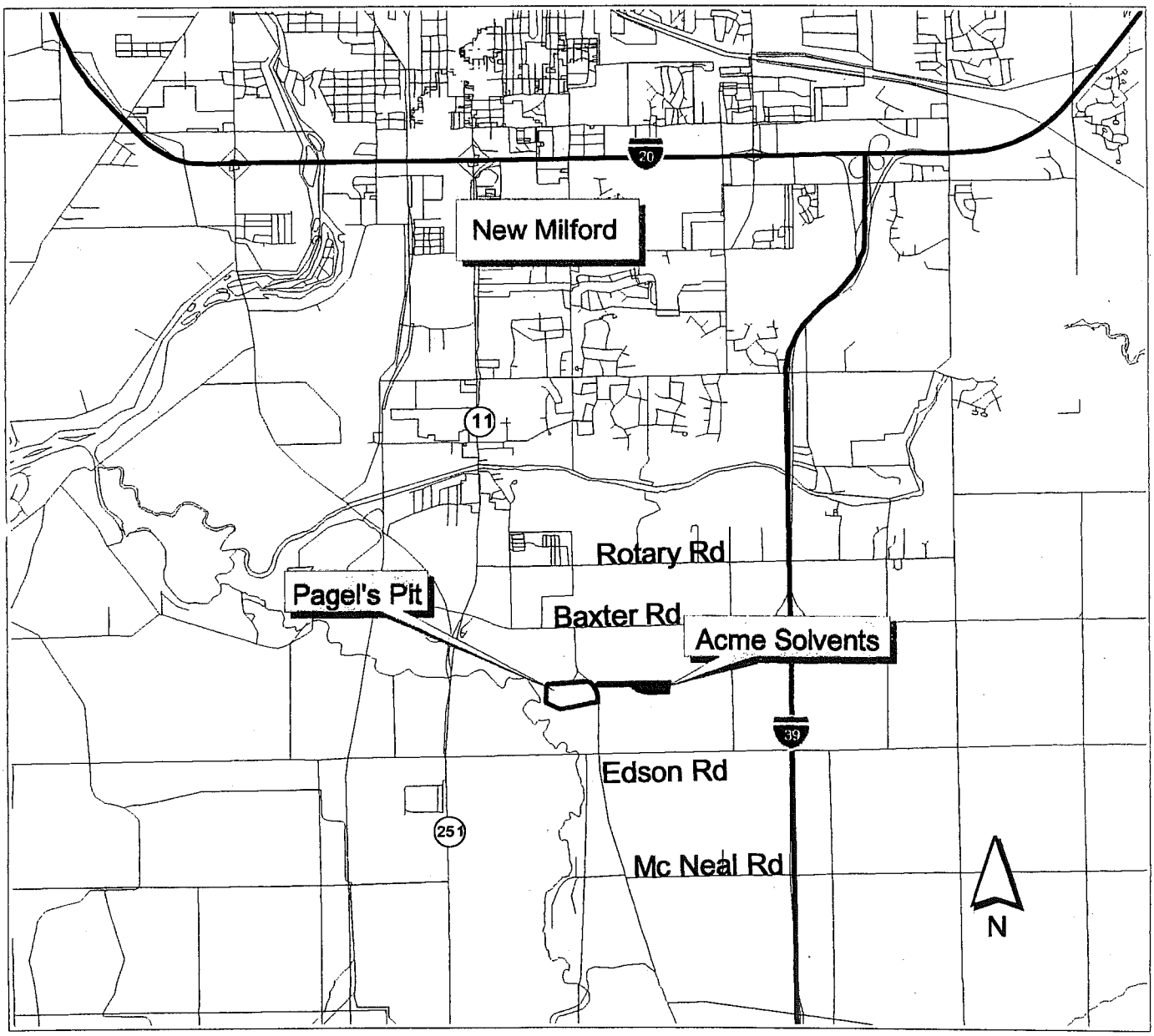

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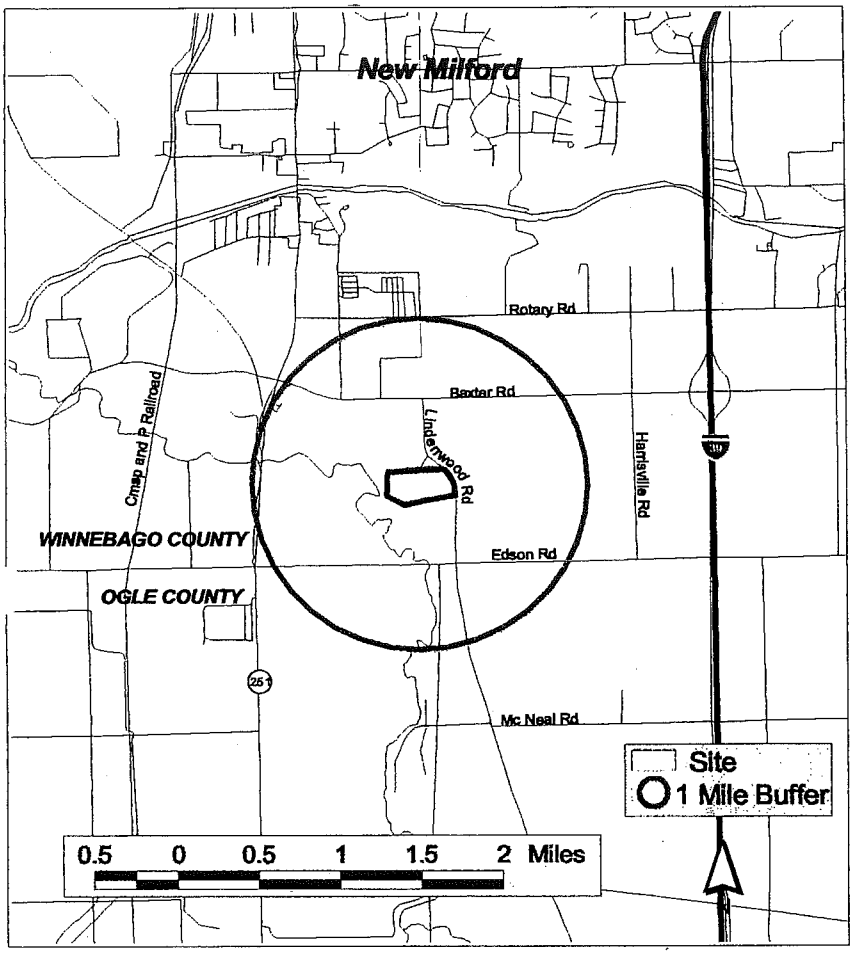
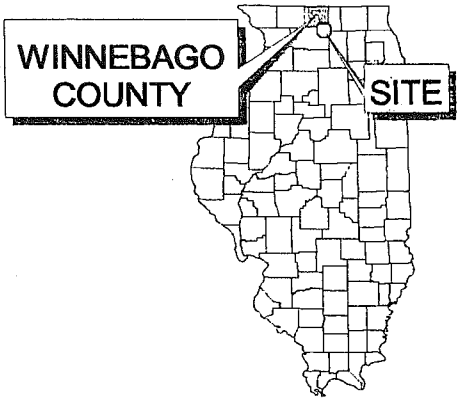
Figure 2

Pagel's Pit Site, New Milford
Winnebago County, Illinois
CERCLIS No. ILD980606685

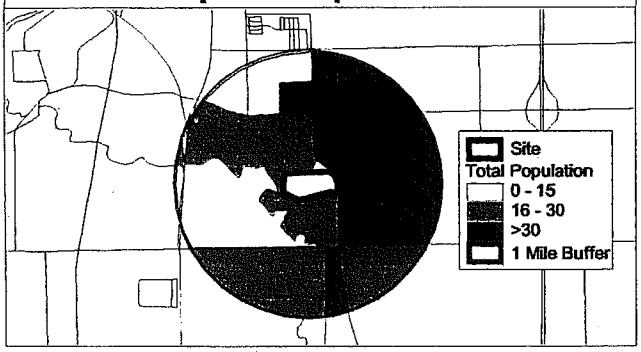




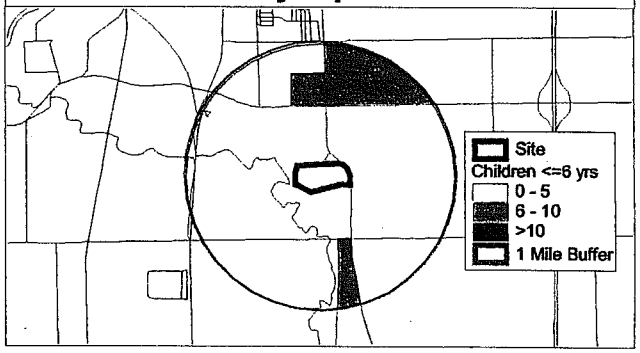
Summary Statistics Within One Mile of the Site

Total Number of People	309
Children Age 6 and Younger	35
Adults Age 65 and Older	35
Females Ages 15-44	75
Younger than 18 yrs	81
Older than 18 yrs	228
White	308
Black	0
Asian or Pacific Islander	1
American Indian, Eskimo, Al	0
Other Race	0
Hispanic Origin	5

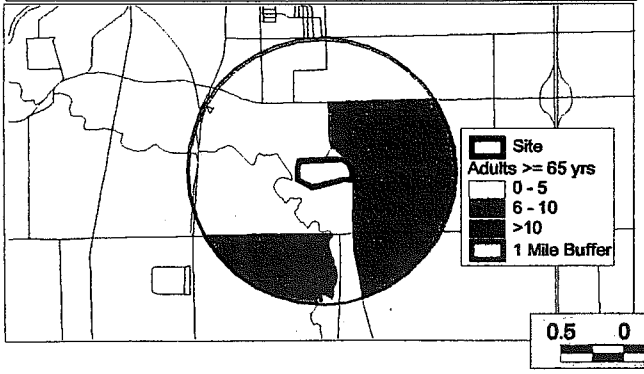
Total Population per Census Block



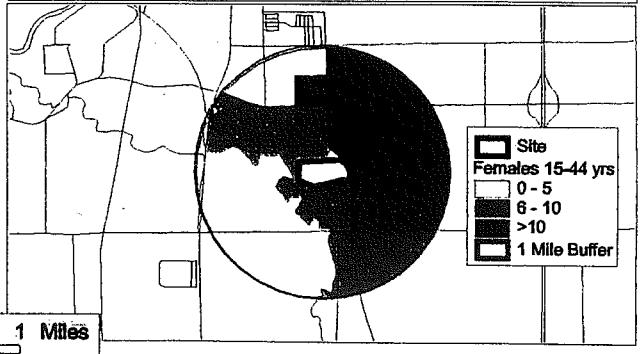
Children <= 6 yrs per Census Block

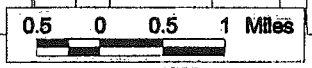


Adults >= 65 per Census Block



Females 15-44 per Census Block





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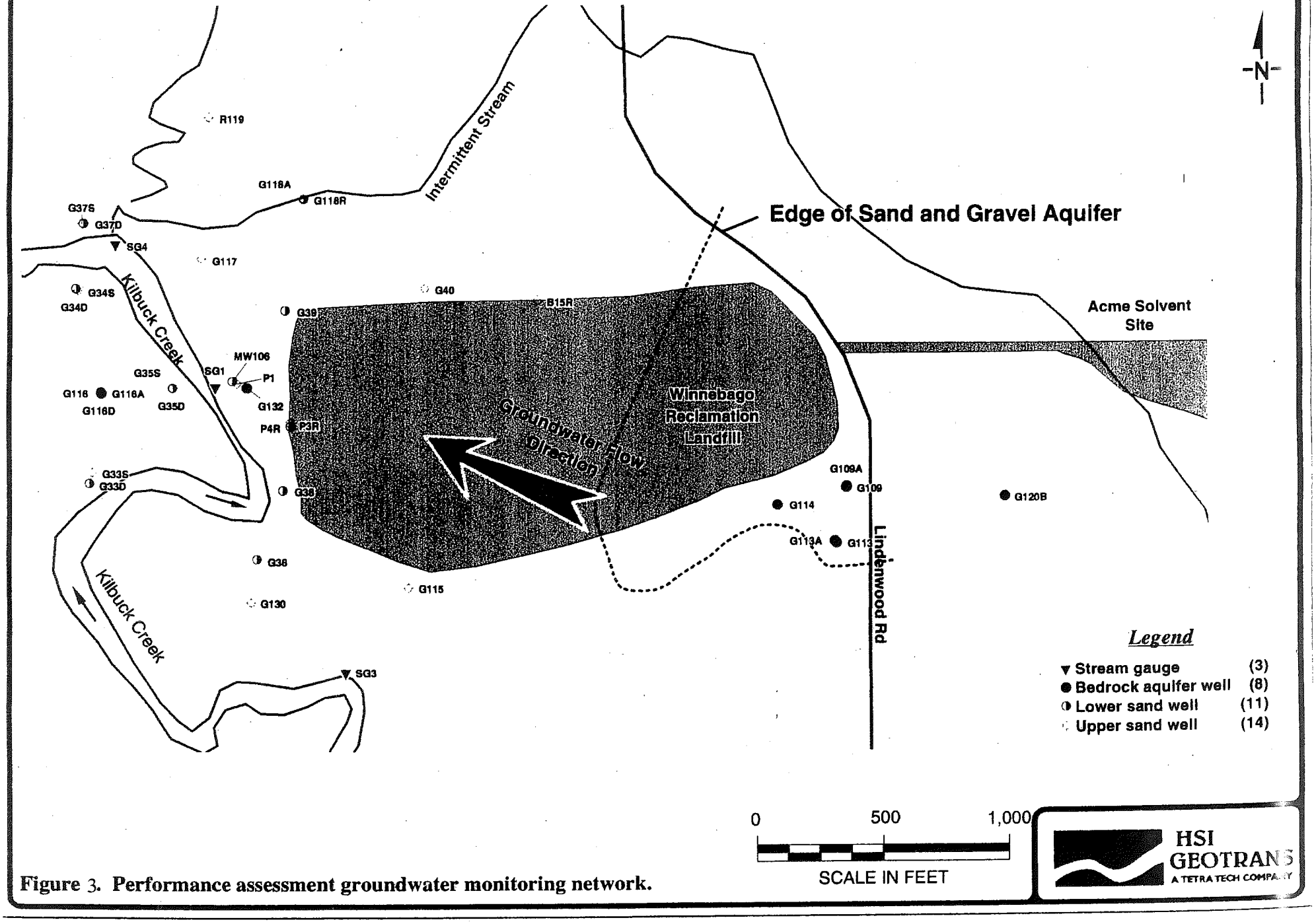

Figure 3. Performance assessment groundwater monitoring network.

Glossary

Comparison Values Used In Screening Contaminants For Further Evaluation

Environmental Media Evaluation Guides (EMEGs) are developed for chemicals based on their toxicity, frequency of occurrence at National Priorities List (NPL) sites, and potential for human exposure. They are derived to protect the most sensitive populations and are not action levels, but rather comparison values. They are developed without consideration for carcinogenic effects, chemical interactions, multiple route exposure, or other media-specific routes of exposure, and are very conservative concentration values designed to protect sensitive members of the population. EMEGs are derived from ATSDR's minimal risk levels or MRLs.

Reference Dose Media Evaluation Guides (RMEGs) are another type of comparison value derived to protect the most sensitive populations. They are developed without consideration for carcinogenic effects, chemical interactions, multiple route exposure, or other media-specific routes of exposure, and are very conservative concentration values designed to protect sensitive members of the population. RMEGs are derived from USEPA's reference doses or RfDs.

Cancer Risk Evaluation Guides (CREGs) are estimated contaminant concentrations based on a probability of one excess cancer in a million persons exposed to a chemical over a lifetime. These are also very conservative values designed to protect sensitive members of the population.

Maximum Contaminant Levels (MCLs) have been established by USEPA for public drinking water supplies to reduce the chances of adverse health effects from use of contaminated drinking water. These standards are well below levels for which health effects have been observed and take into account the financial feasibility of achieving specific contaminant levels. These are enforceable limits that public water supplies must meet.

Lifetime Health Advisories for drinking water (LTHAs) have been established by USEPA for drinking water and represent the concentration of a chemical in drinking water that is not expected to cause any adverse, non-carcinogenic effects over a lifetime of exposure. These are conservative values that incorporate a margin of safety.

Certification

This Pagel's Pit Site Health Consultation was prepared by the Illinois Department of Health under Cooperative Agreement with the Agency for Toxic Substances and Disease Registry. It is in accordance with approved methodology and procedures existing at the time the Health Consultation was initiated.

Technical Project Officer
SPS, SSAB, DHAC

The Division of Health Assessment and Consultation (DHAC), ATSDR, has reviewed this Health Consultation and concurs with its findings.

Chief, SPS, SSAB, DHAC, ATSDR